

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
5 February 2004 (05.02.2004)

PCT

(10) International Publication Number  
**WO 2004/012151 A1**

(51) International Patent Classification<sup>7</sup>: **G06T 13/00**,  
G06F 13/16, G10L 13/00

(21) International Application Number:  
PCT/AU2003/000393

(22) International Filing Date: 31 March 2003 (31.03.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
2002950502 31 July 2002 (31.07.2002) AU

(71) Applicant (for all designated States except US): **E-CLIPS INTELLIGENT AGENT TECHNOLOGIES PTY LTD** [AU/AU]; 11 Merran Court, Wheelers Hill, VIC 3150 (AU).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **RUSSELL,**

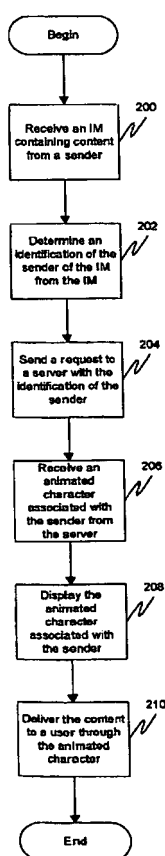
Nicholas [AU/AU]; c/- e-Clips Intelligent Agent Technologies Pty Ltd, 11 Merran Court, Wheelers Hill, VIC 3150 (AU). **FELICH, Andrew** [AU/AU]; c/- e-Clips Intelligent Agent Technologies Pty Ltd, 11 Merran Court, Wheelers Hill, VIC 3150 (AU). **JENKINS, James** [GB/GB]; 11 Wentworth Way, Saltash, Cornwall PL12 4DG (GB).

(74) Agents: **EARLEY, Martin** et al.; Pipers Patent And Trade Mark Attorneys, Level 18, 500 Collins St, Melbourne, VIC 3000 (AU).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

[Continued on next page]

(54) Title: ANIMATED MESSAGING



(57) Abstract: A method and apparatus that allows an animated interactive talking character to appear on a user's screen when conducting an Instant Messaging (IM) session. The character which is displayed on the user's screen is determined by a profile for the sender of the message. This allows a user to pre-select which character will be displayed on the screen of recipients of the instant messages.

WO 2004/012151 A1



(84) **Designated States (regional):** ARIPO patent (GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

— with international search report

*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## ANIMATED MESSAGING

CROSS-REFERENCE TO RELATED APPLICATION

5 The present application claims priority based on Australian Provisional Application 20022950502, filed on July 31, 2002, by e-Clips Intelligent Agent Technologies Pty. Ltd, entitled "Animated Messaging". This application and its disclosure are fully incorporated in the present disclosure by reference thereto.

FIELD OF THE INVENTION

10 The present invention relates to the field of instant messaging. More specifically, the present invention relates to a solution that allows for animated instant messaging.

BACKGROUND OF THE INVENTION

15 Instant Messaging (IM) has been growing in popularity in recent years. Commonly utilized IM formats, such as Yahoo™ Messenger, created by Yahoo™ of Sunnyvale, CA, and .Net Messenger, created by Microsoft™ of Redmond, WA, allow a computer user to transmit typed information or other data (such as images and videos) to other users of the IM service almost instantaneously. Additionally, many cellular  
20 phones now have text messaging services, most utilizing the Short Message Service (SMS) and Multimedia Message Service (MMS), to allow customers to send and receive text messages.

In both formats, it is common to utilize fixed simple diagrams that can be  
25 displayed within the space of one or two characters in order to quickly convey common pieces of information. Most commonly, these simple diagrams represent emotional states of the user, such as happy being indicated by a smiley-face. As such, these symbols are sometimes known as "smileys". In other circles, they are also known as "emoticons". They need not be limited to emotional states, as the simple diagram can  
30 represent any type of message, such as a "happy birthday" symbol or the like. The rigidity and lack of choice of these fixed simple diagrams, however, is a limitation.

What is needed is a solution that allows more creativity and variety in the IM environment.

5 BRIEF DESCRIPTION

The present invention provides a solution that allows an animated interactive talking character to appear on a user's screen when conducting an Instant Messaging (IM) session. The character which is displayed on the user's screen may be determined by a profile for the sender of the message. This allows a user to pre-select which character will be displayed on the screen of recipients of the instant messages.

BRIEF DESCRIPTION OF THE DRAWINGS

The accompanying drawings, which are incorporated into and constitute a part of this specification, illustrate one or more embodiments of the present invention and, together with the detailed description, serve to explain the principles and implementations of the invention.

In the drawings:

FIG. 1 is a block diagram illustrating a system utilizing a robot in accordance with an embodiment of the present invention.

FIG. 2 is a flow diagram illustrating a method for instant messaging on a computer system in accordance with an embodiment of the present invention.

FIG. 3 is a flow diagram illustrating a method for receiving advertising on a computer system in accordance with an embodiment of the present invention.

FIG. 4 is a flow diagram illustrating a method for interacting with a software robot in accordance with an embodiment of the present invention.

FIG. 5 is a flow diagram illustrating a method for managing an IM system in accordance with an embodiment of the present invention.

5 FIG. 6 is a flow diagram illustrating a method for serving advertising to a user of a computer system in accordance with an embodiment of the present invention.

FIG. 7 is a flow diagram illustrating a method for providing access to an artificial intelligence software robot to a user in accordance with an embodiment of the present invention.

10

FIG. 8 is a flow diagram illustrating a method for providing IM access on a Short Message Service (SMS) or Multimedia Message Service (MMS) format device in accordance with an embodiment of the present invention.

15 FIG. 9 is a flow diagram illustrating a method for personalizing an animated character on a computer system in accordance with an embodiment of the present invention.

20 FIG. 10 is a block diagram illustrating an apparatus for instant messaging on a computer system in accordance with an embodiment of the present invention.

FIG. 11 is a block diagram illustrating an apparatus for receiving advertising on a computer system in accordance with an embodiment of the present invention.

25 FIG. 12 is a block diagram illustrating an apparatus for interacting with a software robot in accordance with an embodiment of the present invention.

FIG. 13 is a block diagram illustrating an apparatus for managing an IM system in accordance with an embodiment of the present invention.

30

FIG. 14 is a block diagram illustrating an apparatus for serving advertising to a user of a computer system in accordance with an embodiment of the present invention.

FIG. 15 is a block diagram illustrating an apparatus for providing access to an artificial intelligence software robot to a user in accordance with an embodiment of the present invention.

FIG. 16 is a block diagram illustrating an apparatus for providing IM access on a Short Message Service (SMS) or Multimedia Message Service (MMS) format device in accordance with an embodiment of the present invention.

FIG. 17 is a block diagram illustrating an apparatus for personalizing an animated character on a computer system in accordance with an embodiment of the present invention. An image receiver 1700 may receive an image from the user.

15

FIG. 18 is a block diagram illustrating a method and an apparatus for providing IM access on a Short Message Service (SMS) or Multimedia Message Service (MMS) format device in accordance with an embodiment of the present invention which makes use of a dynamic array to form an instruction queue.

20

#### DETAILED DESCRIPTION

Embodiments of the present invention are described herein in the context of a system of computers, servers, and software. Those of ordinary skill in the art will realize that the following detailed description of the present invention is illustrative only and is not intended to be in any way limiting. Other embodiments of the present invention will readily suggest themselves to such skilled persons having the benefit of this disclosure. Reference will now be made in detail to implementations of the present invention as illustrated in the accompanying drawings. The same reference indicators will be used throughout the drawings and the following detailed description to refer to the same or like parts.

30

In the interest of clarity, not all of the routine features of the implementations described herein are shown and described. It will, of course, be appreciated that in the development of any such actual implementation, numerous implementation-specific decisions must be made in order to achieve the developer's specific goals, such as compliance with application- and business-related constraints, and that these specific goals will vary from one implementation to another and from one developer to another. Moreover, it will be appreciated that such a development effort might be complex and time-consuming, but would nevertheless be a routine undertaking of engineering for those of ordinary skill in the art having the benefit of this disclosure.

10

In accordance with the present invention, the components, process steps, and/or data structures may be implemented using various types of operating systems, computing platforms, computer programs, and/or general purpose machines. In addition, those of ordinary skill in the art will recognize that devices of a less general purpose nature, such as hardwired devices, field programmable gate arrays (FPGAs), application specific integrated circuits (ASICs), or the like, may also be used without departing from the scope and spirit of the inventive concepts disclosed herein.

The present invention provides a solution that allows an animated interactive talking character to appear on a user's screen when conducting an Instant Messaging (IM) session. The character which is displayed on the user's screen may be determined by a profile for the sender of the message. This allows a user to pre-select which character will be displayed on the screen of recipients of the instant messages.

25 An embodiment of the present invention is described for use with the Microsoft Messenger. As such, it is described as a plug in. One of ordinary skill in the art will recognize that the invention may be modified for use with other messaging systems.

30 In an embodiment of the present invention, a system is provided that allows users to select from many different animated personalities that will represent them during an IM session. Furthermore, an embodiment of the present invention allows

users to import images into the animated personality, therefore permitting them to utilize characters that may, for example, have the user's face on it, or perhaps the face of the user's favourite celebrity. When the animated character is displayed on the recipient's screen, it may appear outside of the typical IM window, allowing user's to move the  
5 animated character to a convenient portion of the desktop.

In an embodiment of the present invention, text-to-speech software may be utilized to allow the animated character to read instant messages aloud. The animated characters may be programmed such that their lips may move along with the text being  
10 read. Furthermore, the typical "smileys" or "emoticons" may be interpreted by the character and the animation may change based on the corresponding emoticon. For example, if the sender of the IM message indicates an "angry" emoticon, the animated character may be displayed as pounding his fist against a table.

15 The user may select a character to act as their personality using an interface. In an embodiment of the present invention, the interface may be a web interface, such as a web page, where the user logs in with an account name and password, such as with their IM account name and password, and selects from a number of different features. Once the user has selected a character, the selection may be transmitted to the server  
20 containing the relevant information. A user's preferences may be stored in a database that may be referenced by the IM account name and a user defined password. The database may be used to hold all relevant user information and the associated character data.

25 The user may download the add-in using this interface as well. The add-in may connect to the IM messaging system. It may then wait for automation events that signify that an incoming message has arrived. At this point, the add-in may contact the database to look up which personality or character the message sender has chosen. The connection to the database of stored information may be indirect, as it may be retrieved  
30 through the server where a dynamically generated query to the database may be created



using the incoming request. If no record is found, a default personality may be used. The personality may then be loaded onto the user's display.

5 In an embodiment of the present invention, when a user changes their character, the new details may be broadcast to all members of their contact lists so that remote copies of the add-in can updated the displayed character for the user. However, in the current Microsoft functionality, there is no way for this broadcast to take place, thus in some embodiments the add-in must perform the aforementioned request for every incoming message if it wants to ensure that the character displayed is the current one. In 10 another embodiment, the request may be performed only sporadically, loading the character data from a local cache until such time as it deems an update is necessary (perhaps once a day, for example).

15 The character may be used to graphically output, using animated and/or static images, a visual representation of the personality defined by the sender. Additionally, pre-recorded audio clips may be utilized along with text-to-speech synthesis in order to provide an audio version or representation of the message. The audio portion may not be limited to merely an audio transcript of the written information. It may, for example, include sound effects. Perhaps a user wishes to have a symbol indicated anger cause a 20 sound effect of a dog growling to be played by the recipient's computer system.

25 The add-in may parse incoming messages for a predefined list of emoticons and may match them with a predefined list of character animations or audio clips. The add-in may then request the specified animation file from the server and play it for the user.

30 By maintaining the character personality based on the user's log-in name, the present invention allows the character to be a consistent identify across multiple messaging platforms, so a user may log-in on their computer at work, for example, and their character will be present in their messages just as it is from their home computer.

In an embodiment of the present invention, an auto responder function may be included to allow users to enable an automated response, such as "On vacation until May 30th" to any received messages. The add-in may automatically type and submit the user-defined message back to the sender of the incoming message. Each auto-responder message may be sent pre-appended with a specially formatted string that may be used to prevent auto-responders from responding to each other.

In an embodiment of the present invention, interactive advertising may be provided through the add-in. This advertising may be maintained in a database. it may list all advertisement details. A simple interface may be provided for administrators where they can specify the details of the advertisement. The add-in may request an advertisement from the database periodically, such as every 30 minutes.

In an embodiment of the present invention, a "robot" may be provided to allow interactive communications between a user and the server. This could be used, for example, to allow web searching through IM, access to database information (such as corporate sales records in the case where IM is used at the corporate level) or interactive help. FIG. 1 is a block diagram illustrating a system utilizing a robot in accordance with an embodiment of the present invention. The robot 100 may actually be a server application that listens for incoming messages from the messenger 102. When one of these alerts is received, it may store the message in a data structure such as an array, which is keyed against the name of the user who sent the alert. The message may then be sent to an artificial intelligence (AI) application 104 along with any previous messages from the initiating user. This allows the AI 104 to appear to be having an intelligent conversation by referring to things previously spoken about and keeping the conversation in context. Once the message has been processed and a response formed, it may be returned to the robot 100 which may forward the response via the messenger 102 to the initiating user.

The web searching function may be implemented by, for example, having the first six characters of an IM message read "google". A keyword to search may be

provided after the word "google" to indicate what to search. The Robot may then take this word and forward it to the Google™ search engine, created by Google, Inc. of Mountain View, CA and request five results. Google may then respond with details to then be deciphered by the robot. This may then be sent back to the initiating user. The  
5 sending of the results of the search need not be immediate. It may, for example, search for 24 hours and then follow up with the results. The robot may also be used for other artificial intelligence applications. It may even be proactive, that is, initiate communication with a user before the user initiates communication.

10 In an embodiment of the present invention, the add-in may display a plurality of animated characters simultaneously if multiple IM sessions are being conducted. The animated characters may be placed anywhere on the display, to avoid overlap. This may also be extended to allow a "chat session" with many different animated characters representing the various senders in the chat session.

15 In an embodiment of the present invention, support may be provided for cellular phone or other "non-traditional" IM environments. SMS and MMS messaging may be provided as an option to subscribers. They may then provide their cellular phone information and set their auto-responder to "forward" mode to indicate that they wish  
20 their cell phone to receive their IM messages.

The add-in may then detect when a message is received and check to see if the user has set the auto-responder to forward mode. If so, then the add-in may send the message details to the server. The server may then retrieve the mobile phone number.  
25 The server may then format the message into SMS or MMS. If MMS is utilized, the server may send a thumbnail image representing the user of the incoming message and convert the message from plain text into an audio file. The message may then be forwarded to the communications gateway, which would in turn send the message into the public telephone network to be received by the user's mobile telephone.

30

The technology of the present invention may be modified to support other messaging services such as Yahoo, ICQ, Trillian, etc. However, there are interface issues that apply to each of these services. Generally, in order to interface with these services an Application Programming Interface (API) needs to be utilized, which  
5 exposes the features of the service to outside programmers. Thus, in that vain, some services do not provide all the needed features in their API or even simply do not provide an API at all. This problem may be overcome using several techniques. In one technique, the "handles" of all conversation windows may be stored. The add-in may then scan the contents of the conversation window every 100ms or the like, and compare  
10 its contents with the contents of the previous scan. If the contents were different, it would indicate a new message has arrived and the difference would be parsed to extract the name of the sender and the contents of the message. These characters may then be presented to the character to visualize for the user.

15 In addition to a set of predefined characters from which to select, in an embodiment of the present invention the user may personalize an IM character. This allows the user to add, for example, an image of his face on the character. The personalization of the animated characters may operate in the following manner. A user interface may be provided within the application. Upon entering the "Personalization"  
20 menu area, the user may be redirected to a section of the host web site. Within this area are instructions advising a user of the processes and a means for a user to link a single image file (e.g., photograph) and upload this file to the user. The user may be provided with tools to crop the image, defining an area over the image that reduces the display area to capture only the external facial and head area. Once the upload of the user's  
25 image is complete, the user may submit the uploaded image for processing.

Once the image is submitted for processing, the images processing engine may use the area defined by the user and crop the image to that size. From this point, depending on the image processing engine deployed, the extraneous information within  
30 the image may be modified, leaving a transparent image area surrounding the facial features and head of the subject image. The image may be subsequently processed

(rendered) to give the appearance of it having been "extruded", creating the appearance of a three-dimensional image. Once the rendered image is created, the engine may use predetermined parameters to manipulate the extruded image into preconfigured positions and interpolate the movement from the base position to the new position. As a result, the image processing engine may output a series of sequential, specifically sized images that depict the rendered, extruded facial images moving from the base point to the predetermined point.

Using the previously outputted images, a further stage of processing may be performed wherein the images are introduced to a three-dimensional geometry engine. The base image that contains the rendered facial features may be aligned and mapped to three-dimensional geometry representing a character. This alignment of the image occurs so that the processed image exists to cover the face of the character in three-dimensional geometry. The other character attributes may be predefined in terms of body shape, surface such as clothing and colours and textures. The geometry engine may then be used to render out a total sequence of animated motion, and output to a series of still, sequential images. These images may conform to the standard required by the next level of image processing. These images may be named and numbered following a strict nomenclature and in accordance with a suitable colour table that enables the next processing step to occur.

The sequential rendered images from the previous step may then be compiled into a single, digital file. During this process, the images are compiled in such a way as to bring together individual static images into a series of animated sequences. The animated sequences may then be compiled into a proprietary format.

The resultant compilation may deliver several files that describe its contents and deliver connectivity to the user application. The completed files may be deposited on the server. The server may be notified of the newly created character and include the image within the character library, assigning the image to the identity of the initial image provider. The user may then be notified by email of their completed character.

Additionally, in certain circumstances it may be desirable to define animations to an "idle" state. It has been discovered that if characters appear on screen without moving for long periods of time, it becomes disconcerting to users. At the same time, small character movements at frequent/random intervals help to enhance the realism of a given characters. As a result, when creating a character, a specific animation may be assigned to an idle "state". There may be, for example, 3 levels of idle, levels 1, 2, and 3. The first level may idle a randomly selected movement and play it on the screen. This may occur when the character has not been used for a short period of time. If no interaction with the character continues, the agent application may begin to play animations with an assigned state of idle level 2 animations. Similarly, when the time interval of interaction with the user increases, idle 3 assigned animations may be displayed to the user, and so on.

In an embodiment of the present invention, the add-in may automatically download an idle animation and display it on the screen when a user has not interacted with the animated character for a predetermined period of time. It may similarly download a next level of idle if there continues to be no interaction.

Commonly, instant messages include acronyms for typically-used phrases, such as LTR for later, and A/S/L for Age/Sex/Location. A table may be utilized to store these acronyms and their corresponding definitions. When the add-in detects such an acronym, it may substitute the definition when delivering it to the user (via the screen or the text-to-speech synthesis).

In addition to the text-to-speech functionality described above, the present invention may also include the opposite, speech-to-text synthesis. Through such features, the add-in may receive voice commands from a user through a microphone and convert the speech to text in the instant message. Certain phrases may then be used for special commands, such as sending the instant message.

FIG. 2 is a flow diagram illustrating a method for instant messaging on a computer system in accordance with an embodiment of the present invention. At 200, an IM may be received containing content from the sender. At 202, an identification of the sender of the IM may be determined from the IM. At 204, a request may be sent to a server with the identification of the sender. At 206, an animated character associated with the sender may be received from the server. At 208, an animated character associated with the sender may be displayed. This displaying may include displaying the animated character outside of an IM window, and allowing a user to move the animated character anywhere on the screen. At 210, the content may be delivered to a user through the animated character. This may include converting text from the IM into audio through text-to-speech synthesis and playing the audio. The delivering may further include animating the character in synchronization with the playing of the audio. Further, the delivering may include detecting an emoticon in the IM and animating the character in a way that reflects the emoticon.

15

FIG. 3 is a flow diagram illustrating a method for receiving advertising on a computer system in accordance with an embodiment of the present invention. At 300, advertisement details may be periodically retrieved from a server. At 302, an animated character specified to represent the advertisement may be downloaded. At 304, the animated character specified to represent the advertisement may be displayed. At 306, content specified for the advertisement may be delivered.

20

FIG. 4 is a flow diagram illustrating a method for interacting with a software robot in accordance with an embodiment of the present invention. At 400, an alert may be sent to a server. The sending of an alert may include a sending a message indicating that a web search is to be performed and sending keywords to search in the web search. At 402, a response containing content may be received from the server generated by an artificial intelligence (AI) application. At 404, an animated character associated with the AI application may be displayed. At 406, the content may be delivered to a user through the animated character associated with the AI application. This may include delivering results of a web search if one was conducted.

25

30

FIG. 5 is a flow diagram illustrating a method for managing an IM system in accordance with an embodiment of the present invention. At 500, a request may be received from a user for an animated character, the request including an identification of a sender of the IM message to the user. At 502, a database may be queried with the identification. At 504, information regarding the animated character may be received from the database. This information may include a location for an animation file representing the animated character. At 506, the information regarding the animated character may be forwarded to the user.

10

FIG. 6 is a flow diagram illustrating a method for serving advertising to a user of a computer system in accordance with an embodiment of the present invention. At 600, a periodic request for an advertisement may be received from a user. At 602, an advertisement may be selected from an advertising database. At 604, the advertisement may be served to the user.

15

FIG. 7 is a flow diagram illustrating a method for providing access to an artificial intelligence software robot to a user in accordance with an embodiment of the present invention. At 700, an alert being sent from the user in an IM message may be detected, the IM message including content. At 702, the alert and the content may be passed to an artificial intelligence application. The AI application may provide interactive help, web searching, or other capabilities to the user. At 704, a response from the artificial intelligence application may be received. At 706, the response may be forwarded to the user.

25

FIG. 8 is a flow diagram illustrating a method for providing IM access on a Short Message Service (SMS) or Multimedia Message Service (MMS) format device in accordance with an embodiment of the present invention. At 800, a message may be received from the user indicating that the user wishes for all messages to be forwarded to a device utilizing the SMS format. At 802, an identification of the device may be retrieved from a database. This identification may be a cellular phone number. At 804,

30



a message intended for the user may be formatted in SMS. At 806, the formatted message may be forwarded to a communications gateway along with the identification.

FIG. 9 is a flow diagram illustrating a method for personalizing an animated character on a computer system in accordance with an embodiment of the present invention. At 900, an image may be received from the user. At 902, the image may be rendered as an animated character. This may include removing extraneous information from the image, modifying the image to a three-dimensional image, manipulating the image into preconfigured positions, interpolating movements from a base position to a new position for each of one or more animations for the animated character to perform, and introducing the image to a three-dimensional geometry engine. At 904, the rendered image may be saved in a database.

FIG. 10 is a block diagram illustrating an apparatus for instant messaging on a computer system in accordance with an embodiment of the present invention. An IM receiver 1000 may receive an IM containing content from the sender. A sender identification determiner 1002 coupled to the IM receiver 1000 may determine an identification of the sender of the IM from the IM. A server request sender 1004 coupled to the sender identification determiner 1002 may send a request to a server with the identification of the sender. An animated character receiver 1006 may receive an animated character associated with the sender from the server. An animated character displayer 1008 coupled to the animated character receiver 1006 and to the IM receiver 1000 may display an animated character associated with the sender. This displaying may include displaying the animated character outside of an IM window using an IM window-external character displayer 1010, and allowing a user to move the animated character anywhere on the screen using an animated character mover 1012. An animated character content deliverer 1014 coupled to the animated character displayer 1008 may deliver the content to a user through the animated character. This may include converting text from the IM into audio through text-to-speech synthesis with a text-to-speech synthesizer 1016 and playing the audio with an audio player 1018 coupled to the text-to-speech synthesizer 1016. The delivering may further include

animating the character in synchronization with the playing of the audio using an animated character audio synchronizer 1020. Further, the delivering may include detecting an emoticon in the IM using an emoticon detector 1022 and animating the character in a way that reflects the emoticon using an emoticon character animator 1024  
5 coupled to the emoticon detector 1022.

FIG. 11 is a block diagram illustrating an apparatus for receiving advertising on a computer system in accordance with an embodiment of the present invention. An advertisement details periodic retriever 1100 may periodically retrieve advertisement  
10 details from a server. An animated character downloader 1102 coupled to said advertisement details periodic retriever 1100 may download an animated character specified to represent the advertisement. An animated character displayer 1104 coupled to the animated character downloader 1102 may display the animated character specified to represent the advertisement. An animated character content deliverer 1106  
15 coupled to the animated character displayer 1104 may deliver content specified in the dynamically created file.

FIG. 12 is a block diagram illustrating an apparatus for interacting with a software robot in accordance with an embodiment of the present invention. A server  
20 alert sender 1200 may send an alert to a server. The sending of an alert may include a sending a message indicating that a web search is to be performed using a web search message sender 1202 and sending keywords to search in the web search using a keyword sender 1204 coupled to the web search message sender. An artificial intelligence response receiver 1206 may receive a response containing content from the  
25 server generated by an artificial intelligence (AI) application. An animated character displayer 1208 coupled to the artificial intelligence response receiver 1206 may display an animated character associated with the AI application. An animated character content deliverer 1210 coupled to the animated character displayer 1208 may deliver the content to a user through the animated character associated with the AI application.  
30 This may include delivering results of a web search if one was conducted using a web search results deliverer 1212.

FIG. 13 is a block diagram illustrating an apparatus for managing an IM system in accordance with an embodiment of the present invention. An animated character request receiver 1300 may receive a request from a user for an animated character, the request including an identification of a sender of the IM message to the user. A  
5 database query generator 1302 coupled to the animated character request receiver 1300 may query a database with the identification. An animated character database information receiver 1304 may receive information regarding the animated character from the database. This information may include a location for an animation file  
10 representing the animated character. An animated character database information forwarder 1306 coupled to the animated character database information receiver 1304 may forward the information regarding the animated character to the user.

FIG. 14 is a block diagram illustrating an apparatus for serving advertising to a  
15 user of a computer system in accordance with an embodiment of the present invention. A periodic advertisement request receiver 1400 may receive a periodic request for an advertisement from a user. An advertisement selector 1402 coupled to the periodic advertisement request receiver 1400 may select an advertisement from an advertising database. An advertisement server 1404 coupled to the advertisement selector 1402  
20 may serve the advertisement to the user.

FIG. 15 is a block diagram illustrating an apparatus for providing access to an artificial intelligence software robot to a user in accordance with an embodiment of the present invention. An alert detector 1500 may detect an alert being sent from the user in  
25 an IM message, the IM message including content. An artificial intelligence alert passer 1502 coupled to the alert detector 1500 may pass the alert and the content to an artificial intelligence application. The AI application may provide interactive help, web searching, or other capabilities to the user. An artificial intelligence response receiver 1504 may receive a response from the artificial intelligence application. An artificial  
30 intelligence response forwarder 1506 coupled to the artificial intelligence response receiver 1504 may forward the response to the user.

FIG. 16 is a block diagram illustrating an apparatus for providing IM access on a Short Message Service (SMS) or Multimedia Message Service (MMS) format device in accordance with an embodiment of the present invention. An SMS or MMS forwarding message receiver 1600 may receive a message from the user indicating that the user wishes for all messages to be forwarded to a device utilizing the SMS format. An SMS or MMS device identification retriever 1602 coupled to the SMS or MMS forwarding message receiver 1600 may retrieve an identification of the device from a database. This identification may be a cellular phone number. An SMS or MMS message formatter 1604 may format a message intended for the user in SMS or MMS. An SMS or MMS message forwarder 1606 coupled to the SMS or MMS message formatter 1604 and to the SMS or MMS device identification retriever 1602 may forward the formatted message to a communications gateway along with the identification.

FIG. 17 is a block diagram illustrating an apparatus for personalizing an animated character on a computer system in accordance with an embodiment of the present invention. An image receiver 1700 may receive an image from the user. An animated character image renderer 1702 coupled to the image receiver 1700 may render the image as an animated character. This may include removing extraneous information from the image using an extraneous information remover 1704, modifying the image to a three-dimensional image using a three-dimensional image modifier 1706 coupled to the extraneous information remover 1704, manipulating the image into preconfigured positions using a preconfigured position image manipulator 1708 coupled to the three-dimensional image modifier 1706, interpolating movements from a base position to a new position for each of one or more animations for the animated character to perform using a movement interpolator 1710 coupled to the preconfigured position image manipulator 1708, and introducing the image to a three-dimensional geometry engine 1712 coupled to the movement interpolator 1710. The rendered image may then be saved in a database.

FIG. 18 is a block diagram illustrating a method and an apparatus for providing IM access on a Short Message Service (SMS) or Multimedia Message Service (MMS) format device in accordance with an embodiment of the present invention which makes use of a dynamic array to form an instruction queue. The biggest problem was in displaying the animated characters for each user. Initial version of the invention saw just a single animated character on the desktop, which would act primarily as a friendly interface for the user. One of its functions was to read out the text of incoming instant messages and prefix the audio output with the name of the sender. However, generally relevant software is programmed asynchronously. This means that a user program would tell the animated character what it needed to do and then continue with its own processing. Then at some undetermined time the program would initiate and make the animated character perform whatever you had requested. Once this is completed the software then notifies the user program that it has finished and the user program can do whatever with this information it chooses. Due to this it is not possible to harbour more than an animated character at a time, and the reading out of the incoming messages might not take place in their designated order. In addition to this some computer systems can only support audio output from one user program at a time. If two animated characters needed to speak at once then only one of the characters output would be heard and the other would be blocked.

20

Now because of the notification process mentioned above whereby program notifies the user program that a request has been processed we were able to build a 'sliding window' or a dynamic array which is simply a code version of a queue. So what would happen is the user program would receive an incoming message and it would be added into this queue, rather than immediately requesting an animated character. If this request is the first or only item in the queue it would be automatically 'popped' off and requests an animated character. Once request had been performed it would notify the user program and the user program would (if the queue is not empty) pop off another request and repeat the cycle over again. By doing this we overcame both of the problems whereby not only can we control the order in which incoming

30

messages are displayed to the user, but also prevent the animated characters from talking over one and another.

The process therefore as shown in Figure 18 is:

- 5 1. The invention awaits an incoming message for the instant messaging program.
2. Once it has been determined that an incoming message was received the invention would perform the following: -
  - a. Check to see if the auto-responder is turned on
    - 10 i. If it is then a predefined message would be returned to the sender of the incoming message
  - b. Extract the name of the sender
  - c. Determine the unique identifier of this sender by checking in the contacts list
  - d. Convert any acronyms into 'English'
  - 15 e. Check for any emoticons and store them in a list for later.
3. Request the details regarding the senders animated character from the server
4. Add the message text into the queue (as mentioned above) along with any emoticons that were extracted
5. Once these items in the queue get processed the invention will retrieve the emoticons for the defined animated character from the server
- 20 6. Load the users animated character onto the screen
7. Read out the message while the above step 5 is taking place
8. Play the emoticons

The second biggest problem to be overcome was how to determine an incoming message had arrived. The solution we decided upon was to have the invention locate the messaging windows and scan their contents at a regular interval (say 100ms). It would then compare the contents of the messaging window with the contents of the window previously. It was determined that if the contents were different then a new message had arrived and that the different between the two would represent this message. It was then into a process of extracting the name of the sender from this message and adding its details to the queue for processing.

25

30

While embodiments and applications of this invention have been shown and described, it would be apparent to those skilled in the art having the benefit of this disclosure that many more modifications than mentioned above are possible without  
5 departing from the inventive concepts herein. The invention, therefore, is not to be restricted except in the spirit of the appended claims.

CLAIMS

What is claimed is:

1. A method for instant messaging on a computer system, including:  
receiving an instant message (IM) containing content from a sender;  
5 displaying an animated character associated with said sender; and  
delivering said content to a user through said animated character.
2. The method of claim 1, further including:  
determining an identification of said sender of said IM from said IM.
- 10 3. The method of claim 2, further including:  
sending a request to a server with said identification of said sender; and  
receiving said animated character associated with said sender from said server.
- 15 4. The method of any one of claim 1, wherein said delivering includes:  
converting text from said IM into audio through text-to-speech synthesis; and  
playing said audio.
5. The method of claim 4, wherein said delivering further includes:  
20 animating said character in synchronization with said playing of said audio.
6. The method of claim 4, wherein said delivering further includes:  
detecting an emoticon in said IM; and  
animating said character in a way that reflects said emoticon.
- 25 7. The method of claim 1, wherein said displaying includes displaying said  
animated character outside of an IM window.
8. The method of claim 7, further including allowing a user to move said animated  
30 character anywhere on the screen.



9. The method of claim 1, further including:  
periodically retrieving advertisement details from a server;  
downloading an animated character specified to represent said advertisement;  
displaying said animated character specified to represent said advertisement; and  
5 delivering content specified for said advertisement.
10. The method of claim 1, further including:  
sending an alert to a server;  
receiving a response containing content from said server generated by an  
10 artificial intelligence (AI) application;  
displaying an animated character associated with said AI application; and  
delivering said content to a user through said animated character associated with  
said AI application.
- 15 11. The method of claim 10, wherein said sending an alert includes:  
sending a message indicating that a web search is to be performed; and  
sending keywords to search in said web search.
12. The method of claim 11, wherein said delivering said content comprises  
20 delivering results of said web search.
13. The method of claim 1, further including:  
allowing the user to select from one or more predefined animated characters to  
be displayed on a recipient's computer system when said user sends an IM message to  
25 said recipient.
14. The method of claim 1, further including:  
allowing the user to upload an image to be used in creating an animated  
character to be displayed on a recipient's computer system when said user sends an IM  
30 message to said recipient.

15. A method for instant messaging on a digital communication system such as a computer system or digital telephone system or combination thereof, including:
- receiving one or more instant messages (IM) containing content from one or more senders;
  - 5 forming a queue by creating a dynamic array and inserting incoming message into said queue;
  - controlling the timing of operations of actions in the queue and when required displaying an animated character associated with said sender; and
  - delivering said content to a user through said animated character.
- 10
16. The method of claim 15 wherein the animated character can be displayed on an output screen without being bounded by the instant message (IM) window.
17. The method of claim 16 wherein a plurality of animated characters determined in
- 15 the queue of messages from senders can be simultaneously displayed on the imaging screen and the messages are sequentially delivered through the respective sender's animated character.
18. The method of any one of claims 15 to 17 wherein the messaging window is
- 20 continually scanned and compared with previous messaging to determine if message has been received, and if received analyses message and places in queue.
19. A method for managing an Instant Messaging (IM) system, including:
- receiving a request from a user for an animated character, said request including
  - 25 an identification of a sender of an IM message to said user;
  - querying a database with said identification;
  - receiving information regarding said animated character from said database; and
  - forwarding said information regarding said animated character to said user.
- 30
20. The method of claim 19, wherein said information regarding said animated character includes a location for an animation file representing said animated character.

21. The method of claim 19, further including:  
receiving a periodic request from said user for an advertisement;  
selecting an advertisement from an advertising database; and  
5 serving said advertisement to said user.
22. The method of claim 19, further including:  
detecting when an alert is sent from said user in an IM message, said IM  
message also including content;  
10 passing said alert and said content to an artificial intelligence application;  
receiving a response from said artificial intelligence application; and  
forwarding said response to said user.
23. The method of claim 22, wherein said artificial intelligence application provides  
15 interactive help to said user.
24. The method of claim 22, wherein said artificial intelligence application provides  
web searching capabilities to said user.
- 20 25. The method of claim 19, further including:  
receiving a message from said user indicating that the user wishes for all  
messages to be forwarded to a device utilizing the Short Message Service (SMS) or  
Multimedia Message Service (MMS) format;  
retrieving an identification of said device from a database;  
25 formatting a message intended for said user in SMS or MMS; and  
forwarding said formatted message to a communications gateway along with  
said identification.
26. The method of claim 25, wherein said identification is a cellular phone number.  
30
27. The method of claim 19, further including:

receiving an image from said user;  
rendering said image as an animated character; and  
saving said rendered image in said database.

5    28.    The method of claim 27, further including:  
cropping said image.

29.    The method of claim 27, wherein said rendering comprises:  
removing extraneous information from said image;  
10    modifying said image to a three-dimensional image;  
manipulating said image into preconfigured positions; and  
interpolating movements from a base position to a new position for each of one  
or more animations for said animated character to perform.

15    30.    The method of claim 29, wherein said rendering further comprises:  
introducing said image to a three-dimensional geometry engine.

31.    An apparatus for instant messaging on a computer system, including:  
an IM receiver;  
20    an animated character displayer coupled to said IM receiver; and  
an animated character content deliverer coupled to said animated character  
displayer.

32.    The apparatus of claim 31, further including:  
25    a sender identification determiner coupled to said IM receiver.

33.    The apparatus of claim 32, further including:  
a server request sender coupled to said sender identification determiner; and  
an animated character receiver coupled to said animated character displayer.  
30

34. The apparatus of claim 31, wherein said animated character content deliverer includes:

a text-to-speech synthesizer; and  
an audio player coupled to said text-to-speech synthesizer.

5

35. The apparatus of claim 34, wherein said animated character content deliverer further includes:

an animated character audio synchronizer.

10 36. The apparatus of claim 34, wherein said animated character content deliverer further includes:

an emoticon detector; and  
an emoticon character animator coupled to said emoticon detector.

15 37. The apparatus of claim 31, wherein said animated character display includes an IM window-external character displayer.

38. The apparatus of claim 31, wherein said animated character display further includes an animated character mover.

20

39. The apparatus of claim 31, further including:  
an advertisement details periodic retriever; and  
an animated character downloader coupled to said advertisement details periodic retriever and to said animated character content deliverer;

25

40. The apparatus of claim 31, further including:  
a server alert sender;  
an artificial intelligence response receiver coupled to said animated character displayer and to said animated character content deliverer.

30

41. The apparatus of claim 40, wherein said server alert sender includes:

a web search message sender; and  
a keyword sender coupled to said web search message sender.

42. The apparatus of claim 41, wherein said animated character content deliverer  
5 comprises a web search results deliverer.

43. An apparatus for managing an Instant Messaging (IM) system, including:  
an animated character request receiver;  
a database query generator coupled to said animated character request receiver;  
10 an animated character database information receiver; and  
an animated character database information forwarder coupled to said animated  
character database information receiver.

44. The apparatus of claim 43, further including:  
15 a periodic advertisement request receiver;  
an advertisement selector coupled to said periodic advertisement request  
receiver; and  
an advertisement server coupled to said advertisement selector.

20 45. The apparatus of claim 44, further including:  
an alert detector;  
an artificial intelligence alert passer coupled to said alert detector;  
an artificial intelligence response receiver; and  
an artificial intelligence response forwarder coupled to said artificial intelligence  
25 response receiver.

46. The apparatus of claim 43, further including:  
an SMS or MMS forwarding message receiver;  
an SMS or MMS device identification retriever coupled to said SMS forwarding  
30 message receiver;  
an SMS or MMS message formatter; and

an SMS or MMS message forwarder coupled to said SMS message formatter and to said SMS device identification retriever.

47. The apparatus of claim 43, further including:  
5 an image receiver;  
an animated character image renderer and to said image receiver; and  
an animated character saver coupled to said animated character image renderer.
48. The apparatus of claim 47, wherein said animated character renderer comprises:  
10 an extraneous information remover;  
a three-dimensional image modifier coupled to said extraneous information remover;  
a preconfigured position image manipulator coupled to said three-dimensional image modifier; and  
15 a movement interpolator coupled to said preconfigured position image manipulator.
49. The apparatus of claim 48, wherein said animated character renderer further comprises:  
20 a three-dimensional geometry engine coupled to said movement interpolator.
50. An apparatus for instant messaging on a computer system, including:  
means for receiving an instant message (IM) containing content from a sender;  
means for displaying an animated character associated with said sender; and  
25 means for delivering said content to a user through said animated character.
51. The apparatus of claim 50, further including:  
means for determining an identification of said sender of said IM from said IM.
- 30 52. The apparatus of claim 51, further including:

means for sending a request to a server with said identification of said sender;  
and

means for receiving said animated character associated with said sender from  
said server.

5

53. The apparatus of claim 50, wherein said means for delivering includes:  
means for converting text from said IM into audio through text-to-speech  
synthesis; and  
means for playing said audio.

10

54. The apparatus of claim 53, wherein said means for delivering further includes:  
means for animating said character in synchronization with said playing of said  
audio.

15 55. The apparatus of claim 53, wherein said means for delivering further includes:  
means for detecting an emoticon in said IM; and  
means for animating said character in a way that reflects said emoticon.

56. The apparatus of claim 50, wherein said means for displaying includes means for  
20 displaying said animated character outside of an IM window.

57. The apparatus of claim 56, further including means for allowing a user to move  
said animated character anywhere on the screen.

25 58. The apparatus of claim 50, further including:  
means for periodically retrieving advertisement details from a server;  
means for downloading an animated character specified to represent said  
advertisement;  
means for displaying said animated character specified to represent said  
30 advertisement; and  
means for delivering content specified for said advertisement



59. The apparatus of claim 50, further including:  
means for sending an alert to a server;  
means for receiving a response containing content from said server generated by  
5 an artificial intelligence (AI) application;  
means for displaying an animated character associated with said AI application;  
and  
means for delivering said content to a user through said animated character  
associated with said AI application.
- 10 60. The apparatus of claim 59, wherein said means for sending an alert includes:  
means for sending a message indicating that a web search is to be performed;  
and  
means for sending keywords to search in said web search.
- 15 61. The apparatus of claim 60, wherein said means for delivering said content  
comprises means for delivering results of said web search.
62. The apparatus of claim 50, further including:  
20 means for allowing the user to select from one or more predefined animated  
characters to be displayed on a recipient's computer system when said user sends an IM  
message to said recipient.
63. The apparatus of claim 50, further including:  
25 means for allowing the user to upload an image to be used in creating an  
animated character to be displayed on a recipient's computer system when said user  
sends an IM message to said recipient.
64. An apparatus for managing an Instant Messaging (IM) system, including:  
30 means for receiving a request from a user for an animated character, said request  
including an identification of a sender of an IM message to said user;

means for querying a database with said identification;  
means for receiving information regarding said animated character from said database; and  
means for forwarding said information regarding said animated character to said user.

65. An apparatus for managing an Instant Messaging (IM) system of claim 64 including means for forming a queue by creating a dynamic array and inserting incoming message into said queue;

means for controlling the timing of operations of actions in the queue and when required displaying an animated character associated with said sender; and

means for delivering said content to a user through said animated character on an output screen without being bounded by the instant message (IM) window.

66. An apparatus for managing an Instant Messaging (IM) system of claim 65 wherein the means for delivering said content on an output screen allows a plurality of animated characters determined in the queue of messages from senders to be simultaneously displayed on the imaging screen and the messages to be sequentially delivered through the respective sender's animated character.

67. An apparatus for managing an Instant Messaging (IM) system of claim 66 including means for the messaging window to be continually scanned and compared with previous messaging to determine if message has been received, and if received analyses message and places in queue.

68. The apparatus of claim 64, wherein said information regarding said animated character includes a location for an animation file representing said animated character.

69. The apparatus of claim 64, further including:  
means for receiving a periodic request from said user for an advertisement;  
means for selecting an advertisement from an advertising database; and

means for serving said advertisement to said user.

70. The apparatus of claim 64, further including:

means for detecting when an alert is sent from said user in an IM message, said

5 IM message also including content;

means for passing said alert and said content to an artificial intelligence

application;

means for receiving a response from said artificial intelligence application; and

means for forwarding said response to said user.

10

71. The apparatus of claim 70, wherein said artificial intelligence application provides interactive help to said user.

72. The apparatus of claim 71, wherein said artificial intelligence application

15 provides web searching capabilities to said user.

73. The apparatus of claim 64, further including:

means for receiving a message from said user indicating that the user wishes for all messages to be forwarded to a device utilizing the Short Message Service (SMS) or

20 Multimedia Message (MMS) format;

means for retrieving an identification of said device from a database;

means for formatting a message intended for said user in SMS or MMS; and

means for forwarding said formatted message to a communications gateway

along with said identification.

25

74. The apparatus of claim 73, wherein said identification is a cellular phone number.

75. The apparatus of claim 73, further including:

30 means for receiving an image from said user;

means for rendering said image as an animated character; and

means for saving said rendered image in said database.

76. The apparatus of claim 76, further including:  
means for cropping said image.

5

77. The apparatus of claim 75, wherein said means for rendering comprises:  
means for removing extraneous information from said image;  
means for modifying said image to a three-dimensional image;  
means for manipulating said image into preconfigured positions; and  
10 means for interpolating movements from a base position to a new position for  
each of one or more animations for said animated character to perform.

15

78. The apparatus of claim 77, wherein said means for rendering further comprises:  
means for introducing said image to a three-dimensional geometry engine.

20

79. A program storage device readable by a machine, tangibly embodying a program  
of instructions executable by the machine to perform a method for instant messaging on  
a computer system, the method including:

receiving an instant message (IM) containing content from a sender;  
displaying an animated character associated with said sender; and  
delivering said content to a user through said animated character.

25

80. A program storage device readable by a machine, tangibly embodying a program  
of instructions executable by the machine to perform a method for managing an Instant  
Messaging (IM) system, the method including:

receiving a request from a user for an animated character, said request including  
an identification of a sender of an IM message to said user;  
querying a database with said identification;  
receiving information regarding said animated character from said database; and  
30 forwarding said information regarding said animated character to said user.

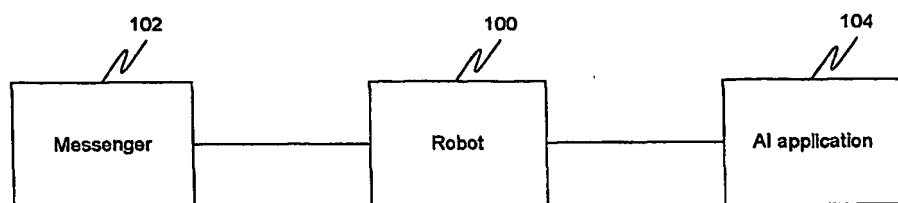


FIG. 1

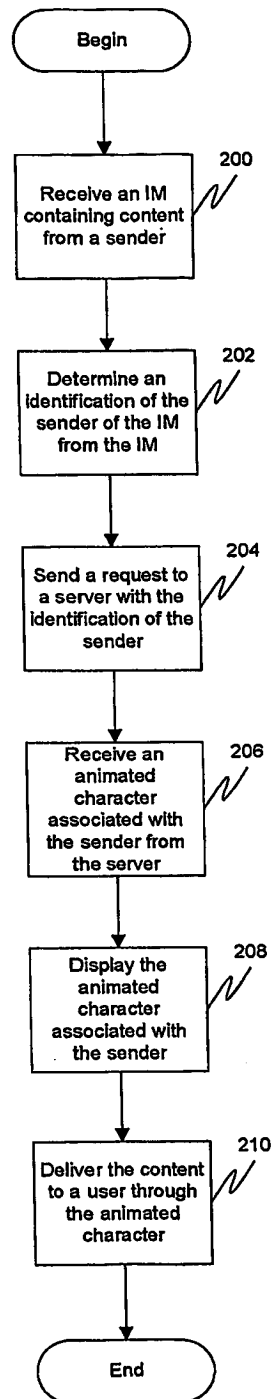


FIG. 2

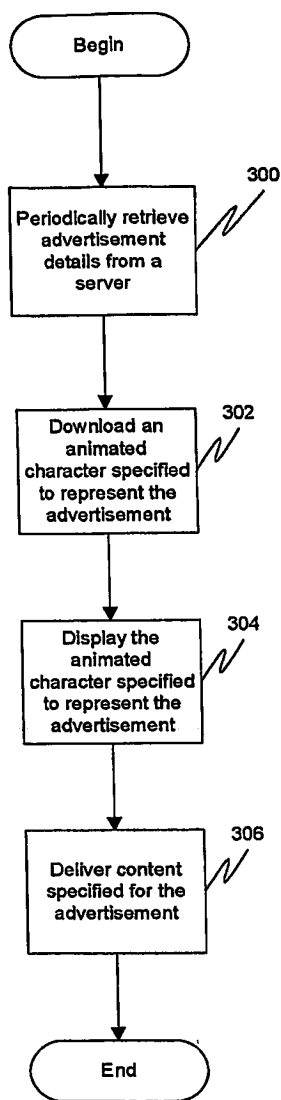


FIG. 3

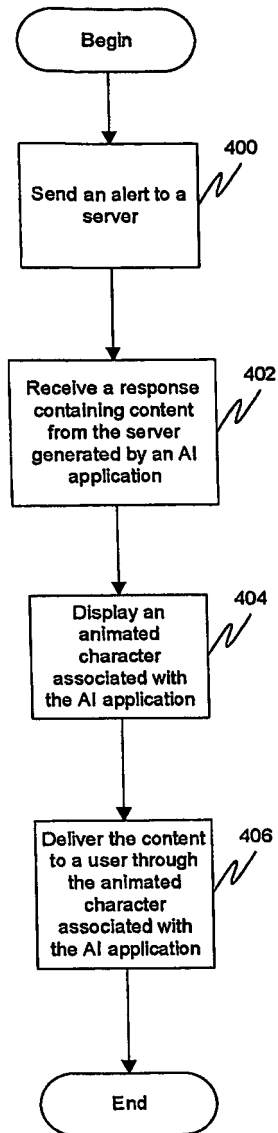


FIG. 4



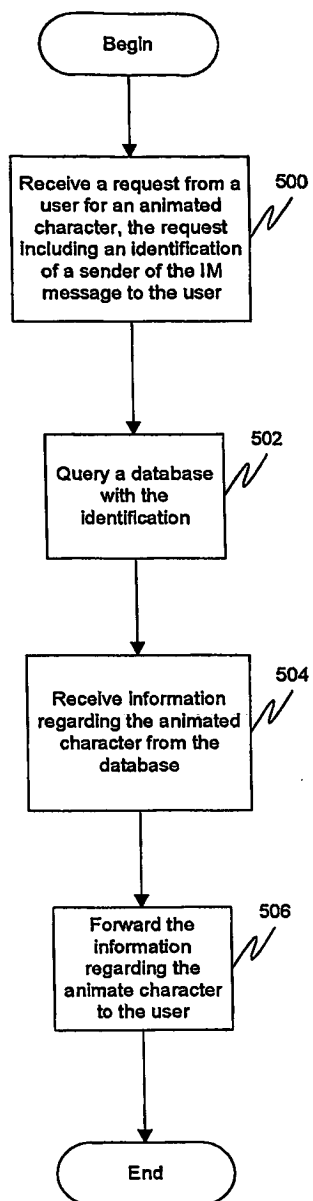


FIG. 5

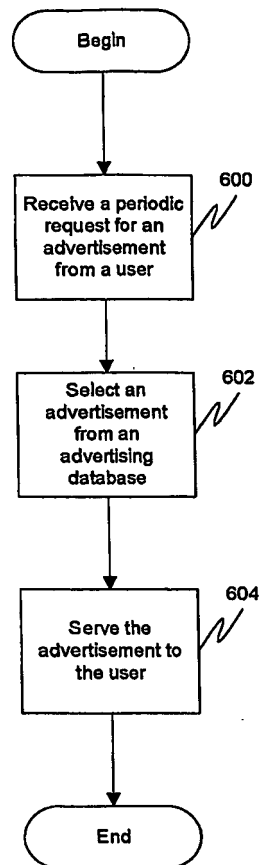
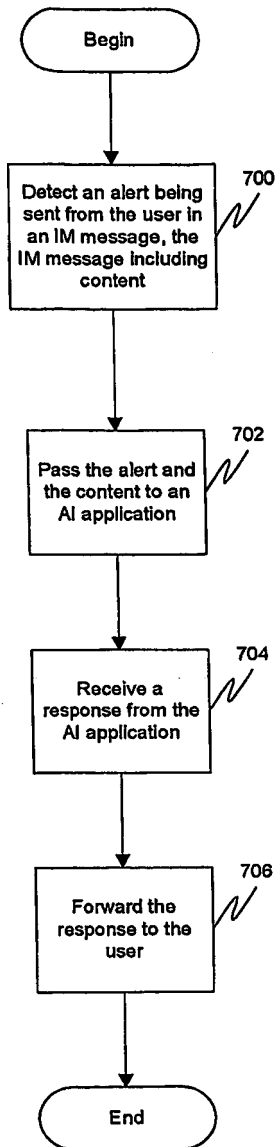


FIG. 6



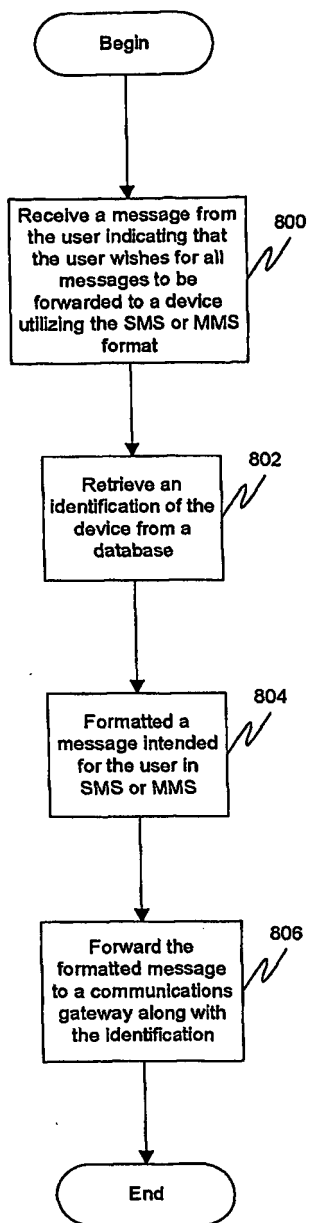
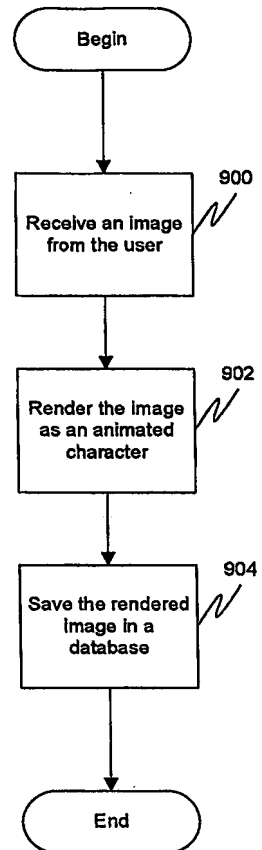


FIG. 8



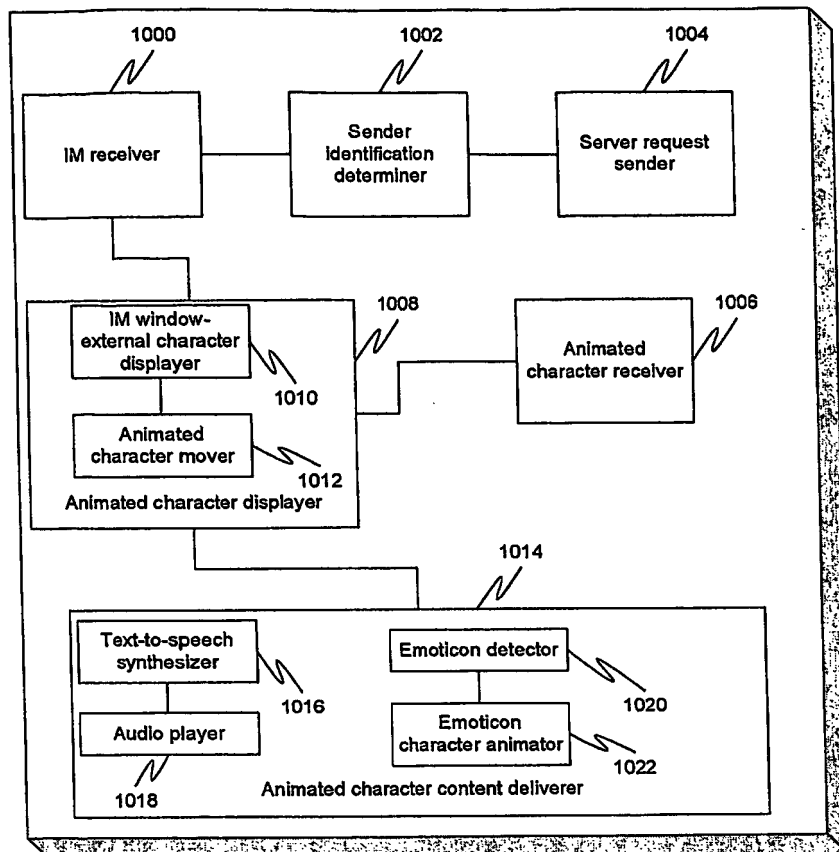


FIG. 10

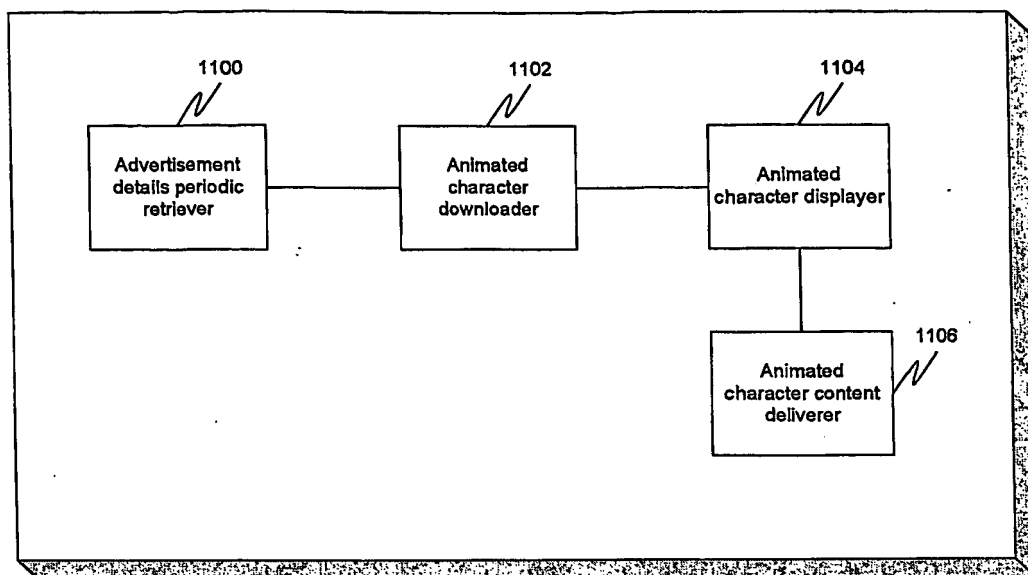


FIG. 11

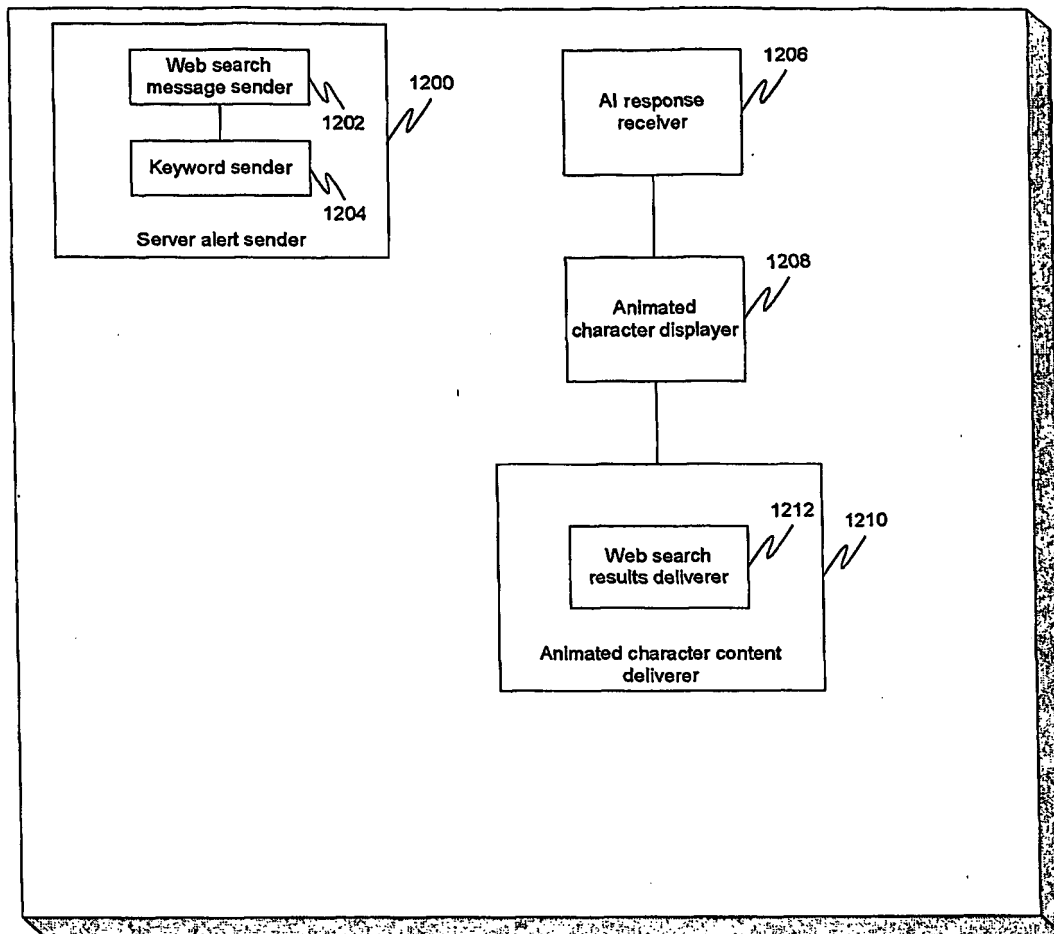


FIG. 12



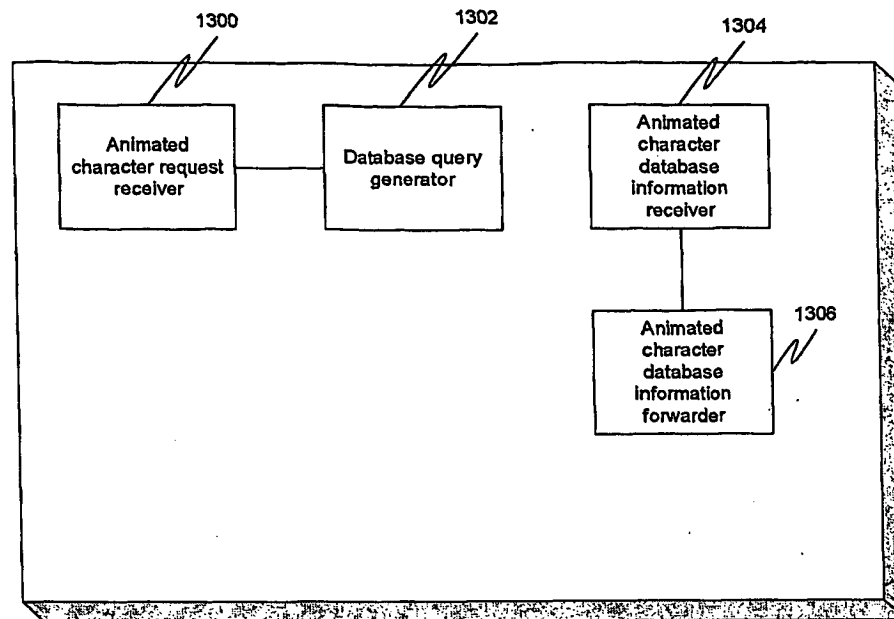


FIG. 13

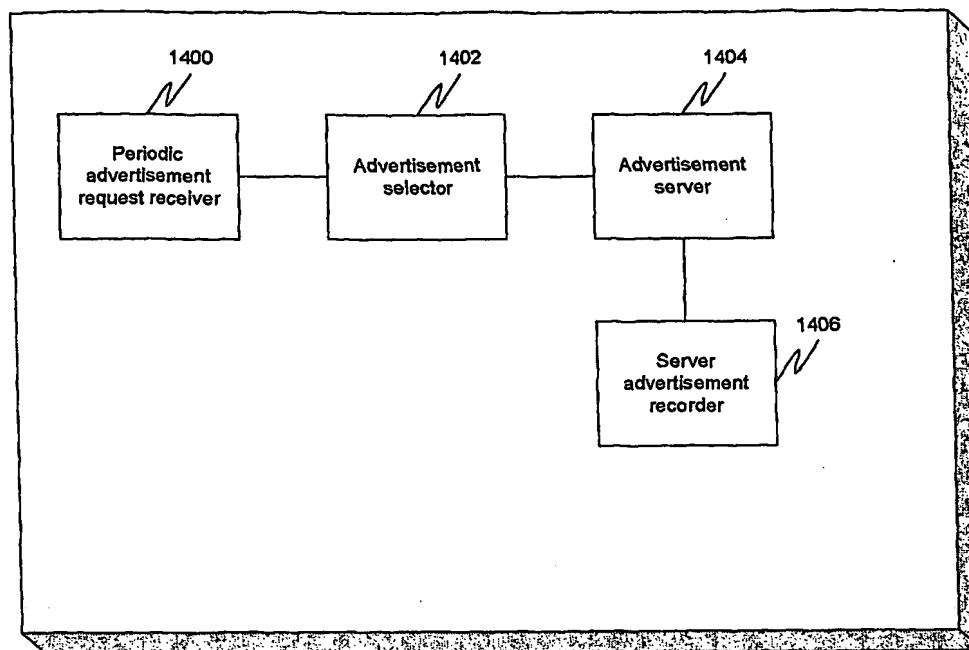


FIG. 14

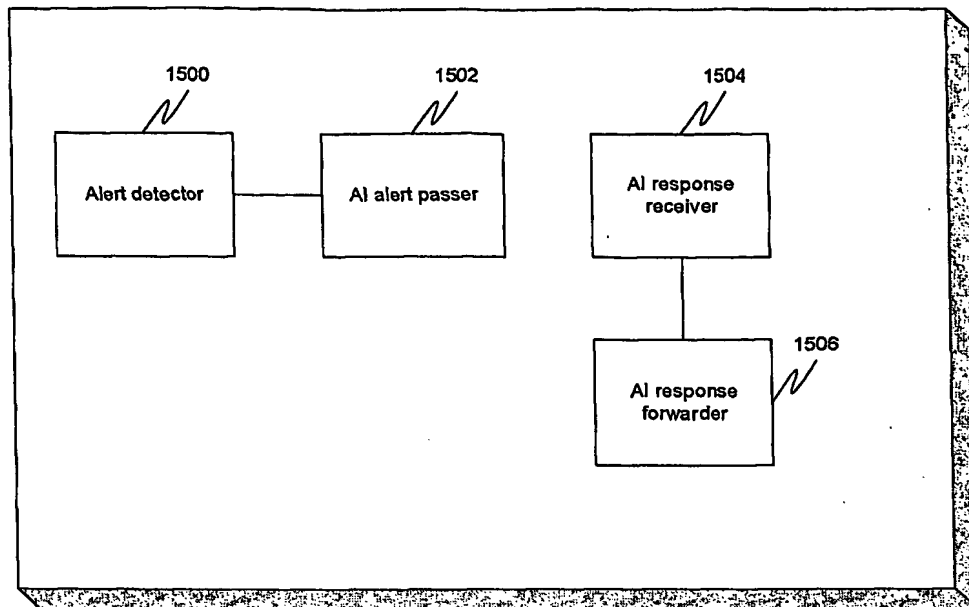


FIG. 15

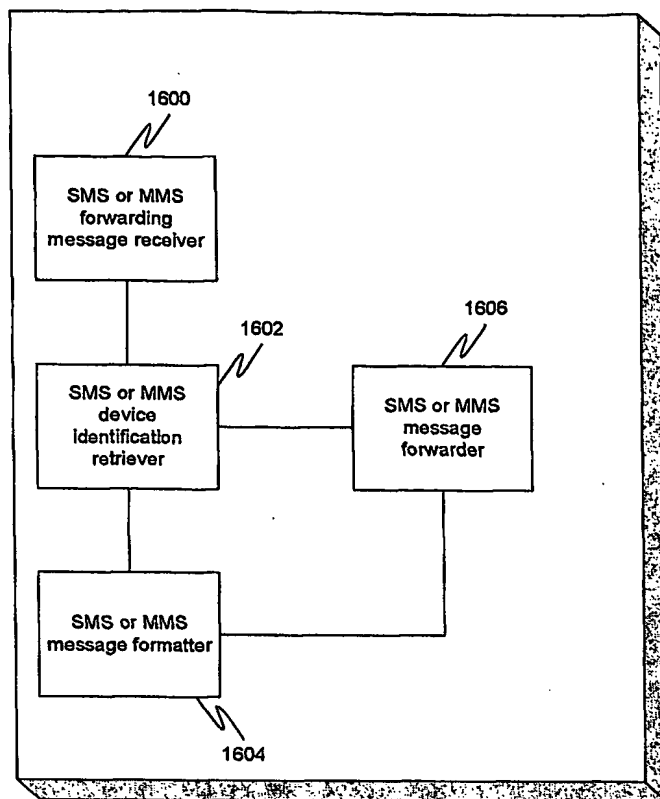


FIG. 16

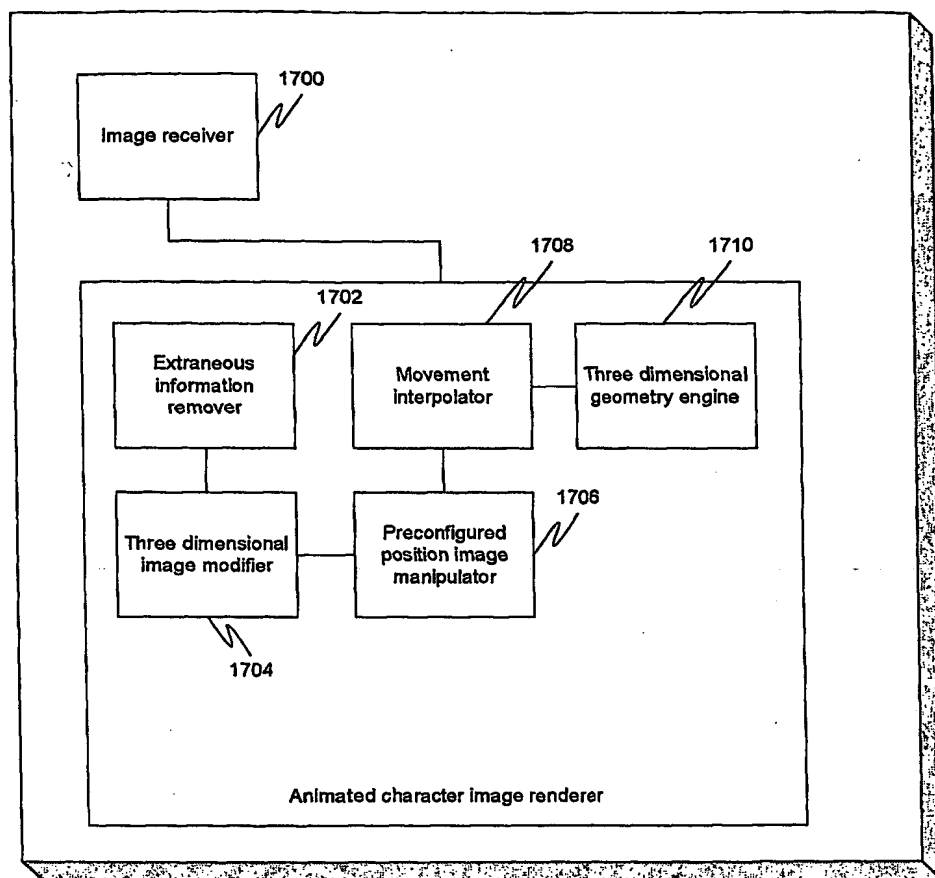


FIG. 17

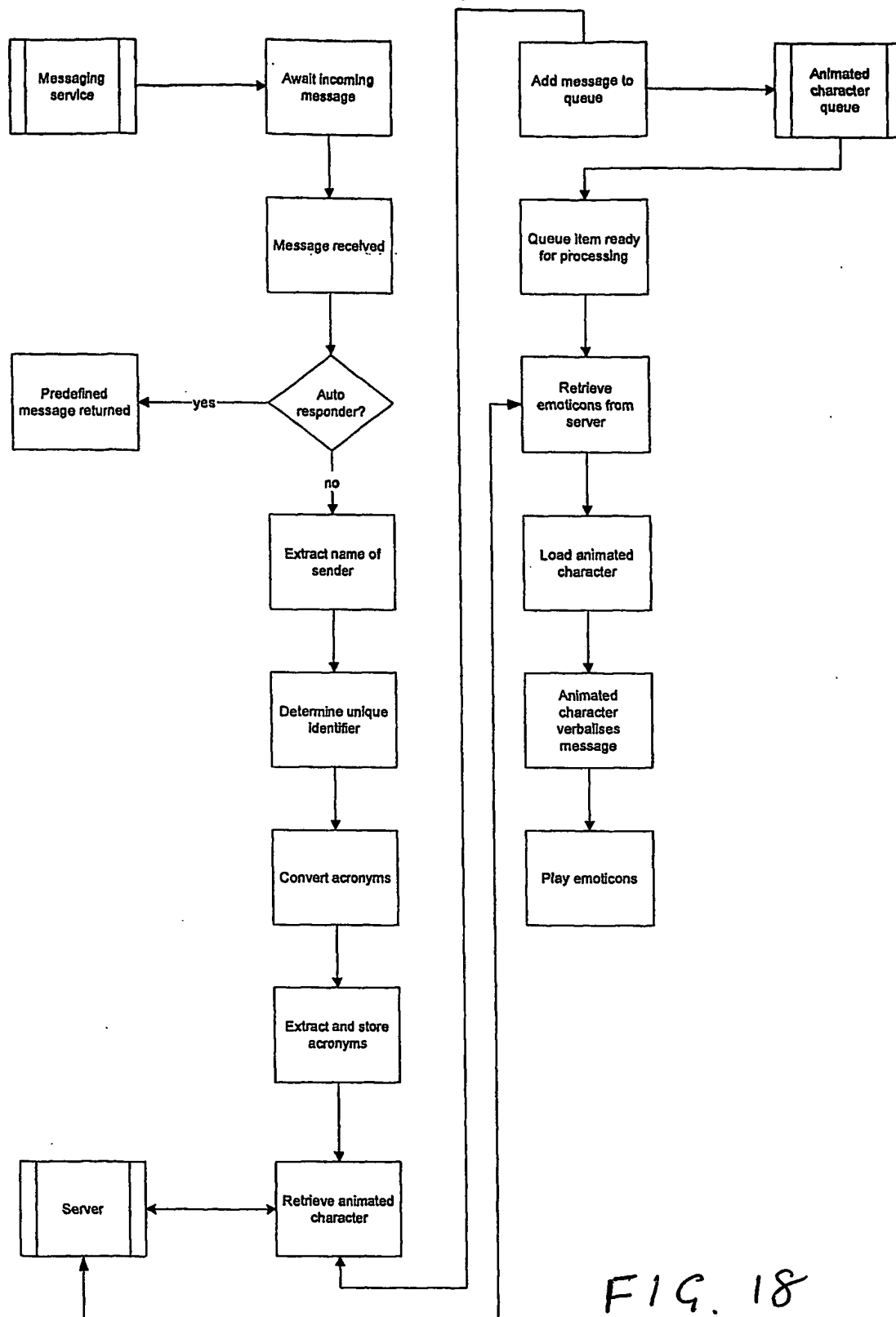


FIG. 18

# INTERNATIONAL SEARCH REPORT

International application No.  
**PCT/AU03/00393**

<b>A. CLASSIFICATION OF SUBJECT MATTER</b>				
Int. Cl. <sup>7</sup> : G06T 13/00, G06F 13/16, G10L 13/00				
According to International Patent Classification (IPC) or to both national classification and IPC				
<b>B. FIELDS SEARCHED</b>				
Minimum documentation searched (classification system followed by classification symbols)				
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched				
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) WPAT: Instant, messaging, animate, internet, network.				
<b>C. DOCUMENTS CONSIDERED TO BE RELEVANT</b>				
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.		
X	FR 2807188 A (VRTV STUDIOS Societe a responsabilite limitee) 5 October 2001 See whole document	1 - 5, 7, 8, 31, 34, 50 - 54, 56, 57, 79		
A	US 6212548 B (DeSimone et al.) 3 April 2001 See whole document	1 - 80		
A	WO 2001/46947 A (Thrillionare productions, Inc.) 28 June 2001 See whole document	1 - 80		
<input type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex				
<p>* Special categories of cited documents:</p> <table style="width: 100%;"> <tr> <td style="width: 50%;"> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> </td> <td style="width: 50%;"> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&amp;" document member of the same patent family</p> </td> </tr> </table>			<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&amp;" document member of the same patent family</p>
<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier application or patent but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art</p> <p>"&amp;" document member of the same patent family</p>			
Date of the actual completion of the international search 16 June 2003		Date of mailing of the international search report <b>20 JUN 2003</b>		
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA E-mail address: pct@ipaustalia.gov.au Facsimile No. (02) 6285 3929		Authorized officer  <b>CATHERINE REES</b> Telephone No : (02) 6283 2811		

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU03/00393

This Annex lists the known "A" publication level patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document Cited in Search Report				Patent Family Member	
FR	2807188	AU	200148435	WO	200175861
US	6212548	NONE			
WO	200146947	AU	200122766		
END OF ANNEX					